

REMARKS

In the subject Office Action dated October 23, 2006, made final, the Examiner rejected claims 12–17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya (U.S. Patent No. 5,809,330), since the Examiner stated that as per claim 12 Ninomiya teaches a method for determining the function of a circuit board (expansion unit, element 2, Fig. 1) disposed in a slot (detection via connectors, element 26 and 27, Fig. 1) in an enclosure comprising the steps of: displaying an identifying characteristic of the slot inside of the enclosure (expansion connector detecting various possible characteristics in the form of multitude of expansion devices, Col. 7, lines 53-58); detecting the displayed characteristic on the circuit board (upon connection routed to system bus for characteristics further determined by photo-sensors, Col. 7, lines 66-67, Col. 8, lines 1-10, the photo-sensors are the initiator in the process to determine the characteristic of the inserted option card, see further explanation for claim 1); interpreting the detected characteristic on the circuit board; and directing the circuit board to perform the function associated with the interpreted characteristic of the slot (CPU enables connectors and determining of characteristics between expansion unit and main unit, element 11, FIG. 1).

The Examiner noted that the determination of the function of a circuit board is not limited to one step of the photo-sensor detecting presence of an inserted option card. Once a card is inserted the apparatus of Ninomiya has photo-sensors 30 and 31 FIG. 1, in conjunction with photo-emitters which generates card detection signals DTE1 and DTE2, as can be seen from the citation from the original office action. Upon generation of the DTE signals the process corresponds with address decoders that receive and decode the I/O address supplied to the system (Col. 8, lines 35-41) and the characteristics can be matched as seen in Fig. 4 and further can be configured via the I/O address map to determine the characteristic functionality of the option card seen in FIG. 5. Thus, the Examiner reasserted that the originally cited photo-sensor represents the detection step of an entire process of determining the characteristics and Ninomiya teaches the entire analogous process.

Applicants respectfully disagree with the Examiner concerning the rejection of claim 12

under 35 U.S.C. 102(b) as being anticipated by Ninomiya (U.S. Patent No. 5,809,330), for the reasons to be set forth hereinbelow.

The Examiner continued rejecting dependent claims 13-17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya. Since applicants believe that independent claim 12 is patentable over Ninomiya, for the reasons to be set forth hereinbelow, no further comment is deemed necessary for claims 13-17 which depend therefrom.

Claims 1-10 were rejected under 35 U.S. C. 103(a) as being unpatentable over Ninomiya in view of Lee (U.S. Patent No. 5,748,912), since the Examiner asserted that as per claim 1, Ninomiya teaches an apparatus for determining the function of a circuit board (expansion unit, element 2, FIG. 1) disposed in a slot (detection via connectors, element 26 and 27, FIG.1) in an enclosure and in electrical communication with said enclosure (laptop-type environment, FIG. 1) which comprises in combination: (a) means located within said enclosure for displaying an identifying characteristic of the slot (expansion connector detecting various possible characteristics in the form of multitude of expansion devices, Col. 7, lines 52-58); (b) means disposed on said circuit board for detecting the characteristic (upon connection routed to system bus for characteristics further determined by photosensors, Col. 7, lines 66-67, Col. 8, lines 1-10, the photosensors are the initiator in the process for interpreting the detected characteristic of the inserted option card); and (c) a processor for interpreting the detected characteristic and for directing said circuit board to perform the function associated therewith (CPU enables connectors and determining of characteristics between expansion unit and main unit, element 11, FIG. 1). The Examiner concluded that Ninomiya does not disclose a processor disposed on said circuit board, but that Lee analogously teaches an option card (FIG. 2b) with a processor disposed on said circuit board (CPU 402, FIG. 4a). The Examiner concluded that it would have been obvious to one of ordinary skill in the art at the time of applicants' invention to insert the option card of Lee into the option card slot of Ninomiya, and that one of ordinary skill in the art would be motivated to make such modifications in order to allow for an efficient and flexible means for users to replace a processor in a unit without exorbitant costs (Col. 2, lines 1-10).

Applicants respectfully disagree with the Examiner concerning the rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over Ninomiya in view of Lee (U.S. Patent No. 5,748,912), for the reasons to be set forth hereinbelow.

The Examiner then rejected dependent claims 2-9 over Ninomiya modified by the teachings of Lee as applied to claim 1, and claims 11 and 18 under 35 U.S.C. 103(a) as being unpatentable over Ninomiya in view of Lee and further in view of Pope et al. (U.S. Patent No. 4,781,066). Since applicants believe that independent claims 1 and 12 are patentable over Ninomiya under 35 U.S.C. 102(a), and over Ninomiya in view of Lee under 35 U.S.C. 103(a), for the reasons to be set forth hereinbelow, applicants believe that no further response is required for dependent claims 2-9, 11, and 18.

Turning now to the rejection of claims 12-17 under 35 U.S.C. 102(b) as being anticipated by Ninomiya (U.S. Patent No. 5,809,330), applicants wish to point out that Ninomiya in Col. 7, lines 46-56, state: "The expansion unit **2** contains a connector **27**, expansion slots including expansion connectors **28** and **29**, as well as photosensors **30** and **31** to determine the presence of a card. The connector **27** has a configuration and pin placement scheme enabling it to connect to the expansion connector **26**. Various types of expansion devices are detachably connected to each of a number of expansion units **28** and **29** belonging to the expansion unit **2**. Expansion devices include modem cards, sound cards, graphics adapter cards, SCSI interface cards, multiple I/O cards and other types of ISA Option cards, as well as PCMCIA-type IC cards." Further, Col. 8, lines 4-19, of Ninomiya state: "The photosensor **30** is a card detection device that detects whether option card **32** is connected to the expansion connector **28**, and is located in the card insertion path of the expansion slot. As shown in the drawing, the photosensor **30** has two protrusions, one side of which is equipped with a photoemitter and the other side of which, facing the first, is equipped with a photoreceptor. When an option card **32** is connected to the expansion connector **28**, the passage of light in the space between these two protrusions, that is, the space between the photoemitter and the photoreceptor, is obstructed by the insertion of the option card **32**. In this event the photosensor **30** generates a card detection signal DTE1 indicating that the option card **32** was inserted in the expansion slot. The card

detection signal DTE1 is sent to the system controller **12** via the connectors **27** and **26**, and a flag indicating the insertion of a card is thereupon set in a prescribed status register in the system controller **12**."

Subject claim 1 recites in part: "An apparatus for determining the function of a circuit board disposed in a slot in an enclosure and in electrical communication with said enclosure, which comprises in combination: "... (a) means located within said enclosure for displaying an identifying characteristic of the slot; (b) means disposed on said circuit board for detecting the characteristic; and (c) a processor disposed on said circuit board for interpreting the detected characteristic and for directing said circuit board to perform the function associated therewith." (emphasis added by applicants). Further, claim 12 recites in part: "... displaying an identifying characteristic of the slot inside of the enclosure; detecting the displayed characteristic on the circuit board; interpreting the detected characteristic on the circuit board; and directing the circuit board to perform the function associated with the interpreted characteristic of the slot." (emphasis added by applicants).

To explain the meaning of the underlined portions of claims 1 and 12, applicants wish to direct the Examiner's attention to page 4, of the subject Specification, as originally filed, beginning on line 18 and ending on page 5, line 7 of the Specification states: "In accordance with one embodiment of the present invention, each slot in an enclosure that houses multiple CRUs has a set of mechanical tabs arranged in a binary fashion. The binary representation for each slot in an enclosure is chosen such that when a CRU is placed in the slot a sensing apparatus determines the configuration of the tabs and reports the configuration to circuits or processors located on the CRU that determine the function of the CRU from this information. Thus, each CRU can identify its unique slot location within the enclosure. If a chosen CRU is moved to another location, it identifies the new location based on the mechanical binary configuration of the new slot. In this manner, CRUs can be removed for service operations such as repair or upgrading, and replacement CRUs can be inserted into the same slot with certainty of their function within the overall system. A variety of sensors may be used to determine the presence or absence of a mechanical tab, including micro switches, Hall-effect devices, or LED sensors, or a combination of

these or other devices. The number of tabs is determined by the number of slot locations to be uniquely identified." (emphasis added by applicants). A "CRU" is a customer replaceable unit (module or circuit board).

Thus, the present claimed invention teaches a system which provides the identity of a slot in which a module (CRU) is inserted. The function of that particular slot is then "known" to the module, and the module is directed to perform the function associated with the slot. That is, once the CRU "knows" in which slot it has been placed, preprogrammed circuitry in the module is directed to perform in accordance with the function of the slot as mandated by its identity. A module or circuit board may therefore perform a variety of functions depending on which slot it is inserted.

Clearly, Ninomiya does not teach apparatus for determining the function of a circuit board dependant on the identity of the slot in which it is disposed, as is recited in both of subject independent claims 1 and 12. That is, Ninomiya does not teach that the system can change the function of an I/O device. Rather, the function of a particular module or circuit board is the same independent of the slot in which it is inserted in accordance with the teachings of Ninomiya.

Therefore, applicants respectfully believe that Ninomiya neither anticipates the subject claimed invention, nor does a combination of Ninomiya with either Lee or Pope et al. render obvious the subject claimed invention.

In view of the discussion presented hereinabove, applicants believe that subject claims 1-18, are in condition for allowance or appeal, and the former action by the Examiner at an early date being earnestly solicited.

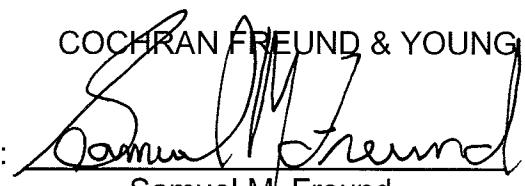
Reexamination and reconsideration are respectfully requested.

Respectfully submitted,

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